AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Previously presented) A method for non-invasively measuring arterial blood pressure at a wrist of a patient, said method comprising the steps of:

a) keeping a wrist of a patient at a posture which can lower a position of at least one tendon of the wrist near to a radial artery to be measured, and cause the radial artery to be close to a radius of the wrist;

b) applying a changing external pressure to the skin above a point where the radial artery crosses a most protuberant spot on a volar aspect of the radius of the wrist;

c) detecting a pulse wave signal of the radial artery along with a change in said external pressure on the skin above said point;

d) measuring blood pressure of the radial artery by measuring said external pressure applied to the radial artery when said pulse wave signal changes.

2. (Currently amended) The method as defined in claim 1, wherein said step of keeping the wrist at said posture forms a[[n]] <u>flexing</u> angle between approximately 100 and 170 degrees, said angle between a dorsal side of the wrist and a dorsal side of the hand attached to the wrist.

3. (Currently amended) The method as defined in claim 1, wherein said step of keeping the wrist at said posture forms a[[n]] <u>flexing</u> angle between a dorsal side of the wrist and a dorsal side of the hand of between approximately 100 and 170 degrees, and synchronously forms a turning angle of the wrist relative to the forearm attached to the wrist of between approximately 30 and 100 degrees towards a medial side of the patient's body.

4. (Currently amended) The method as defined in claim 1, wherein said step of keeping the wrist at said posture forms a[[n]] <u>flexing</u> angle between a dorsal side of the wrist and a dorsal side of the hand attached to the wrist of between approximately 100 and 170 degrees, and synchronously forms a deflecting angle from a central line of the palm of the hand

relative to a central line of a volar side of the wrist at between approximately 10 and 40 degrees towards the little finger of the hand.

5. (Currently amended) The method as defined in claim 1, wherein said step of keeping the wrist at said posture forms a[[n]] flexing angle between a dorsal side of the wrist and a dorsal side of the hand attached to the wrist of between approximately 100 and 170 degrees, and synchronously forms a turning angle of the wrist relative to the forearm attached to the wrist of between approximately 30 and 100 degrees towards a medial side of the patient's body, and a deflecting angle from a central line of the palm of the hand relative to a central line of a volar side of the wrist at between approximately 10 and 40 degrees towards the little finger of the hand.

6. (Previously presented) The method as defined in claim 1, wherein said step of detecting a pulse wave signal of the radial artery includes measuring an oscillation in said external pressure caused by a pulsation of the radial artery.

7. (Previously presented) The method as defined in claim 1, wherein said step of detecting a pulse wave signal of the radial artery includes measuring an oscillation in volume of the radial artery at a site which is on the skin above the radial artery and within a compressing area of said external pressure.

8. (Previously presented) The method as defined in claim 1, wherein said step of detecting a pulse wave signal of the radial artery includes measuring an oscillation in volume of the radial artery at a plurality of sites which are on the skin above the radial artery and within a compressing area of said external pressure, and selecting one optimal measuring site, and then outputting the volume oscillation measured at said optimal measuring site as an optimal pulse wave signal, said plurality of sites including at least two columns and two lines of measuring sites along directions that are parallel and perpendicular to the radial artery respectively.

9. (Currently amended) The method as defined in claim 8, wherein said step of selecting one optimal measuring site comprising the steps of:

a) selecting a column of measuring sites from all columns of measuring sites, said selected column of measuring sites having a feature that the pulse wave signals detected at said selected column of measuring sites all possess maximum amplitude points when said external pressure is close to the mean blood pressure of the patient, and amplitude values of the maximum amplitude points of the pulse wave signals detected at said selected column of measuring sites being larger than those detected at other columns of measuring sites;

b) selecting one optimal site from the selected column of measuring sites, said optimal site having a feature that the pulse wave signal detected at said selected site possesses a point close to disappearance when said external pressure is close to the systolic blood pressure of the patient;

wherein the value of the external pressure, when the amplitude of the pulse wave signals detected at said optimal site is close to maximum, ~~the selected column of measuring sites all possess maximum amplitude points,~~ and the value of the external pressure, when the amplitude of the pulse wave signal detected at said [[the]] optimal site ~~possesses a point~~ is close to disappearance, are lower than said values of [[the]] external pressures detected at other sites of the selected column of measuring sites.

10. (Previously presented) The method as defined in claim 8, further comprising displaying a position of said optimal measuring site within the compressing area of said external pressure, so that an operator can adjust a position of said external pressure according to said displaying step to cause a center of said external pressure to correspond to said optimal measuring site.

11. (Previously presented) The method as defined in claim 8, further comprising the step of automatically checking whether the center of said external pressure corresponds to said optimal measuring site, and giving a warning signal when the center of said external pressure does not correspond to said optimal measuring site, so as to prompt an operator to readjust the position of said external pressure.

12. (Previously presented) The method as defined in claim 1, wherein said step of measuring the blood pressure of the radial artery includes intermittently measuring the blood pressure of the radial artery according to an oscillometric method.

13. (Previously presented) The method as defined in claim 1, wherein said step of measuring the blood pressure of the radial artery includes continuously measuring the blood pressure of the radial artery according to vascular unloading method.

14. (Previously presented) The method as defined in claim 1, wherein said step of measuring the blood pressure of the radial artery includes at least one of intermittently measuring the blood pressure of the radial artery according to oscillometric method and continuously measuring the blood pressure of the radial artery according to vascular unloading method.

15. (Previously presented) The method as defined in claim 1, wherein said step of applying changing external pressure to the radial artery, and detecting the pulse wave signal of the radial artery so as to measure the blood pressure of the radial artery can be switched to become applying changing external pressure to an ulnar artery of the wrist, and detecting the pulse wave signal of the ulnar artery so as to measure a blood pressure of the ulnar artery.

16. (Previously presented) The method as defined in claim 15, further comprising the step of calibrating the measured ulnar artery blood pressure according to the measured radial artery blood pressure.

17. (Currently amended) An apparatus for non-invasively measuring arterial blood pressure at a wrist of a patient comprising:

a) a wrist holding device including a support board, wherein said support board is shaped to adapt to a flexing angle between a dorsal side of the wrist and a dorsal side of a hand attached to the wrist of between approximately 100 and 170 degrees ~~for keeping a~~

~~patient's wrist at a posture~~ which can lower a position of at least one tendon of the wrist near a radial artery to be measured, and cause the radial artery to be close to a radius of the wrist;

b) a pressure bladder for applying an external pressure to the radial artery, wherein said pressure bladder comprises a compressing wall adapted to face the skin above the radial artery of the wrist, wherein a surface area of said compressing wall is between one-fifth and one-third of the cross sectional area of the wrist; [[and]]

c) a pressure bladder holding device for stably positioning said pressure bladder on the skin, and ensuring the center of the surface area of said compressing wall being above a point where the radial artery crosses a most protuberant spot on a volar aspect of the radius of the wrist ~~wherein said pressure bladder comprises a compressing wall adapted to face the skin above the radial artery of the wrist~~;

[[c]]d) a pulse transducer located on the skin above said point for detecting a pulse wave signal of the radial artery; and

[[d]]e) a pressure feeding-measuring system connected to said pressure bladder and said pulse transducer; said pressure feeding-measuring system including a pressure feeding device for feeding pressure to said pressure bladder, and a signal processing device for processing the detected pulse wave signal of the radial artery and controlling said pressure feeding device, so as to measure blood pressure of the radial artery by measuring said external pressure applied to the radial artery when the detected pulse wave signal of the radial artery changes.

18. (Currently amended) The apparatus as defined in claim 17, wherein said ~~wrist holding device includes a support board and several straps; said~~ support board is made of a rigid material and [[having]] possesses a shape adapted to cover at least a portion of a dorsal side of a hand attached to the wrist, the wrist joint, the wrist, and the forearm attached to the wrist, and has [[said]]several straps ~~made of a non-extensible material, each strap being~~ fixed onto the support board by several [[a]] non-extensible devices respectively for stably holding the forearm, wrist and hand of the patient to the support board.

19. (Currently amended) The apparatus as defined in claim 17, wherein ~~the shape of said wrist holding device forms an angle between approximately 100 and 170 degrees adapted to orientate the dorsal side of the wrist and the dorsal side of the hand.~~ said support board is shaped to further adapt to a turning angle of the wrist relative to the forearm attached to the wrist of between approximately 30 and 100 degrees towards a medial side of the patient's body.

20. (Currently amended) The apparatus as defined in claim [[17]] 18, wherein thickness of said support board is increased in a part [[adapted]] attached to cover the dorsal side of the wrist joint, so as to eliminate a difference between diameters of the wrist joint section and that of the middle part of the forearm, and to fill a sinking surface of the dorsal side of wrist joint part due to the hand bending to a regular column surface.

21. (Currently amended) The apparatus as defined in claim 17, wherein said pressure bladder and said bladder holding device are integrated into a whole, to form a strap embedded with said pressure bladder, said compressing wall of said pressure bladder is made of a resilient membrane shaped to upheave towards the wrist, said strap is made of at least a semi-rigid material with slight elasticity and shaped into a ring with an elliptic cross section similar to that of the wrist, and two ends of an opening of said strap are connected by non-extensible means.

22. (Previously presented) The apparatus as defined in claim 17, wherein said pulse transducer is a pressure transducer having a pressure sensing surface connected to said pressure bladder by at least one of air and liquid.

23. (Previously presented) The apparatus as defined in claim 17, wherein said pulse transducer is a volume transducer; said volume transducer is preferably a reflective photoelectric transducer that consists of at least one light emitting device and at least one photoelectric device, said light emitting device and said photoelectric device are arranged vertical to the radial artery, wherein a midpoint between said at least one light emitting

device and said at least one photoelectric device corresponds to an area center of said compressing wall of said pressure bladder, and said at least one light emitting device and said at least one photoelectric device are fixed on an inner surface of said compressing wall of said pressure bladder.

24. (Currently amended) The apparatus as defined in claim 17, wherein said pulse transducer is a volume transducer array including a reflective photoelectric transducer array having a plurality of light emitting devices and a plurality of photoelectric devices which output independent pulse signals respectively; said photoelectric devices are arranged to form a rectangular array, there are at least two [[said]] photoelectric devices in a line and a column of the array respectively; said light emitting devices are arranged around said photoelectric device array; a center of said photoelectric device array corresponds to an area center of said compressing wall of-said pressure bladder; said light emitting devices and photoelectric devices are fixed on an inner surface of said compressing wall of said pressure bladder; each output of the photoelectric devices of said photoelectric device array are respectively connected to corresponding input of an optimal site selector to select an optimal measuring site.

25. (Currently amended) The apparatus as defined in claim [[26]]24, wherein said optimal site selector selects the optimal measuring site according to the steps of:

a) selecting a column of transducers from all columns of transducers, said selected column of transducers having a feature that the pulse wave signals detected by said selected column of transducers all possessing maximum amplitude points when said bladder pressure is close to mean blood pressure of the patient, and amplitude values of the maximum amplitude points of the pulse wave signals detected by said selected column of transducers being larger than that detected by other columns of transducers;

b) selecting one optimal transducer from the selected column of transducers, said selected optimal transducer having a feature that the pulse wave signals detected by said selected optimal transducer possesses a point close to disappearance when said bladder pressure is close to systolic blood pressure of the patient wherein a value of the bladder

pressure, when the amplitude of the pulse wave signal detected by said optimal transducer is close to maximum, and a value of the bladder pressure, when the amplitude of the pulse wave signal detected by the optimal transducer is close to disappearance, are lower than said values of bladder pressures detected by other transducers of the selected column of transducers.

26. (Currently amended) The apparatus as defined in claim [[26]]24, further comprising a device for displaying transducer position to indicate a detailed position of the optimal transducer in said photoelectric device array.

27. (Currently amended) The apparatus as defined in claim [[26]]24, further comprising a warning device of transducer position to issue a warning signal when a position of said optimal transducer does not correspond to the center of said photoelectric device array.

28. (Previously presented) The apparatus as defined in claim 17, wherein said pressure feeding-measuring system is capable of intermittently measuring the blood pressure of the radial artery according to oscillometric method.

29. (Previously presented) The apparatus as defined in claim 17, wherein said pressure feeding-measuring system is capable of continuously measuring the blood pressure of the radial artery according to vascular unloading method.

30. (Previously presented) The apparatus as defined in claim 17, wherein said pressure feeding-measuring system is capable of both intermittently measuring the blood pressure of the radial artery according to oscillometric method and continuously measuring the blood pressure of the radial artery according to vascular unloading method; said apparatus further comprising a switching device for controlling said pressure feeding-measuring system to intermittently measure the radial artery blood pressure according to the oscillometric method and to continuously measure the radial artery blood pressure according to the vascular unloading method.

31. (Currently amended) The apparatus as defined in claim 17, further comprising;

a pressure bladder adapted to be positioned on the skin above an ulnar artery of the patient for applying external pressure to the ulnar artery,

a pulse transducer for detecting the pulse wave signal of the ulnar artery, and

a switching device for switching the two pressure bladders and pulse transducers to measure either radial arterial blood pressure or ulnar arterial blood pressure.

32. (Previously presented) The apparatus as defined in claim 31, further comprising a calibrating device for calibrating a measured ulnar artery blood pressure value according to the measured radial artery blood pressure value.

33. (Currently amended) The apparatus as defined in claim 17, wherein said support board is shaped to further adapt to a deflecting angle from a central line of the palm of the hand relative to a central line of a volar side of the wrist at ~~wrist holding device forms an angle of between approximately 100 and 170 degrees adapted to orientate the dorsal side of the wrist and the dorsal side of the hand, and also forms a deflecting angle~~ between approximately 10 and 40 degrees ~~adapted to deflect a central line of the palm of the hand relative to a central line of the volar side of the wrist~~ towards the little finger of the hand.

34. (Currently amended) The apparatus as defined in claim 17, wherein said support board is shaped to further adapt to a ~~wrist holding device forms an angle of between approximately 100 and 170 degrees adapted to orientate the dorsal side of the wrist and the dorsal side of the hand, forms a~~ turning angle of the wrist relative to the forearm attached to the wrist of between approximately 30 and 100 degrees ~~adapted to turn the wrist relative to the forearm attached to the wrist and~~ towards a medial side of the patient's body, and [[also forms]] a deflecting angle ~~between approximately 10 and 40 degrees adapted to deflect~~ from a central line of the palm of the hand relative to a central line of the volar side of the wrist at between approximately 10 and 40 degrees towards the little finger of the hand.